

Construction of CapnScurvy's Angle on Bow Calculator

January 7, 2008

This calculator has three parts, pages 5, 6, 7 or 8 (page 7 is for imperial use, page 8 is for metric). The pages should be printed, cut out, and held together with a two prong, brass brad fastener. Your printer should be set to its highest printing preference, and you should use standard 8.5 x 11 heavy weight card stock paper (110 lb is good). Click on the printer icon at the top of this PDF screen, a PDF "Print Box" will appear. About half way down find the heading "Page Handling", find the item "Page Scaling" and enter "Fit to printer margins" if its not displayed. This will insure a correct page size for the calculator parts. Be careful to have the three parts lined up correctly when you are making the center whole thru the heavy paper.

Once constructed, use the document included in this PDF (pages 2, 3, and 4) to learn how to use the calculator with Silent Hunter 4 Wolves of the Pacific. This basic instruction will be good for gamers using the game play elements set to a medium low realism. (i.e. Only the "Manual Targeting System" enabled (check marked) within the game options. The other options except for "No Map Contact Update" can be set to whatever preference you like. The "No Map Contact Update" option should be considered when you are ready for a much more challenging game.)

Another tutorial is available for using the calculator with high realism game play settings enabled in Silent Hunter 4. This "High Realism Tutorial" will show you how to use the calculator and other tools of the game to find target ship positions and headings when both "Manual Targeting System and No Map Contact Update" are enabled (check marked) in the game play options. You will learn to plot target ship courses, find AoB, and time for speed, all from the Navigation Map. This will enable you to plan attacks based on the data you acquire manually. With the 1.4 patch came the ability to measure in 50 unit increments (yards or meters) rather than tenths of nautical miles (202 yards) on the Navigation Map. This will create much greater accuracy when manually plotting a targets course.

See you under the sea.

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The three parts of the calculator are from largest to smallest:

1. The Base Wheel

The blue Arrow along the bottom represents your sub's course heading to the middle Compass Dial. The outer numbers in the blue field, represent your view-to-target bearing that can be found at the top of the Binoculars, Periscope, or UZO.

2. The Compass Dial

3. The Target AoB Dial

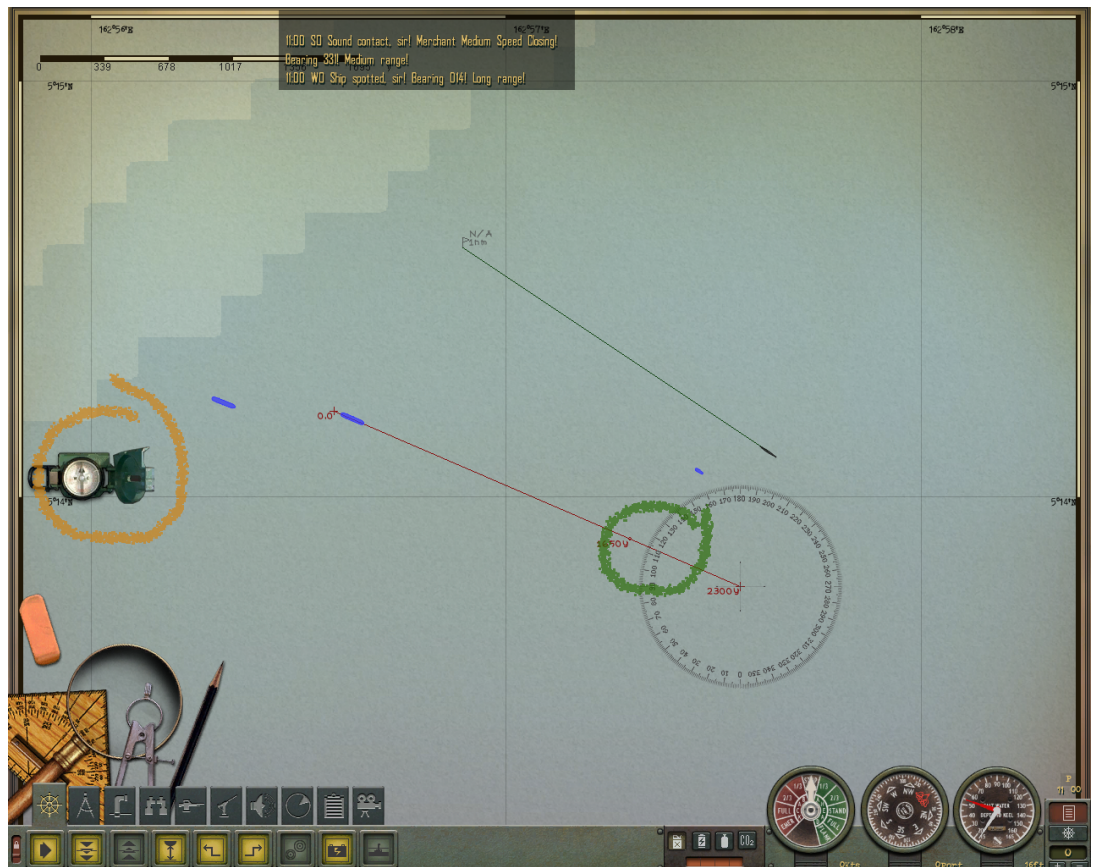
The black arrow represents the target ship's course heading to the middle Compass Dial. The outer smaller numbers are the Angle on Bow indicators. Angle on Bow is the direction bearing of your sub from the target ship's bow, either Port (left) or Starboard (right).

You will need to know three things to make a correct calculation. They are:

1. Course heading of the target ship
2. Your own boat's course heading
3. The view-to-target bearing

For this basic instruction, have the game play options of "Manual Targeting System" enabled (check marked) and the "No Map Contact Update" disabled (unchecked). To find the target ship course heading, use the Navigation Map to plot its course. Along the left side of the map, open the Compass by clicking on it, next click the Ruler. This will give you the Bearing-to-North Protractor tool. Click and drag a line through the target ship in the direction of its travel and read the bearing that the line intersects with along the BACK edge (closest to the target ship) of the protractor.

The Orange circle shows the Compass icon clicked "open". This changes the ruler into the Bearing to North Protractor. The Green circle indicates where you read the bearing heading for the target ship. In this example it's about 112°.

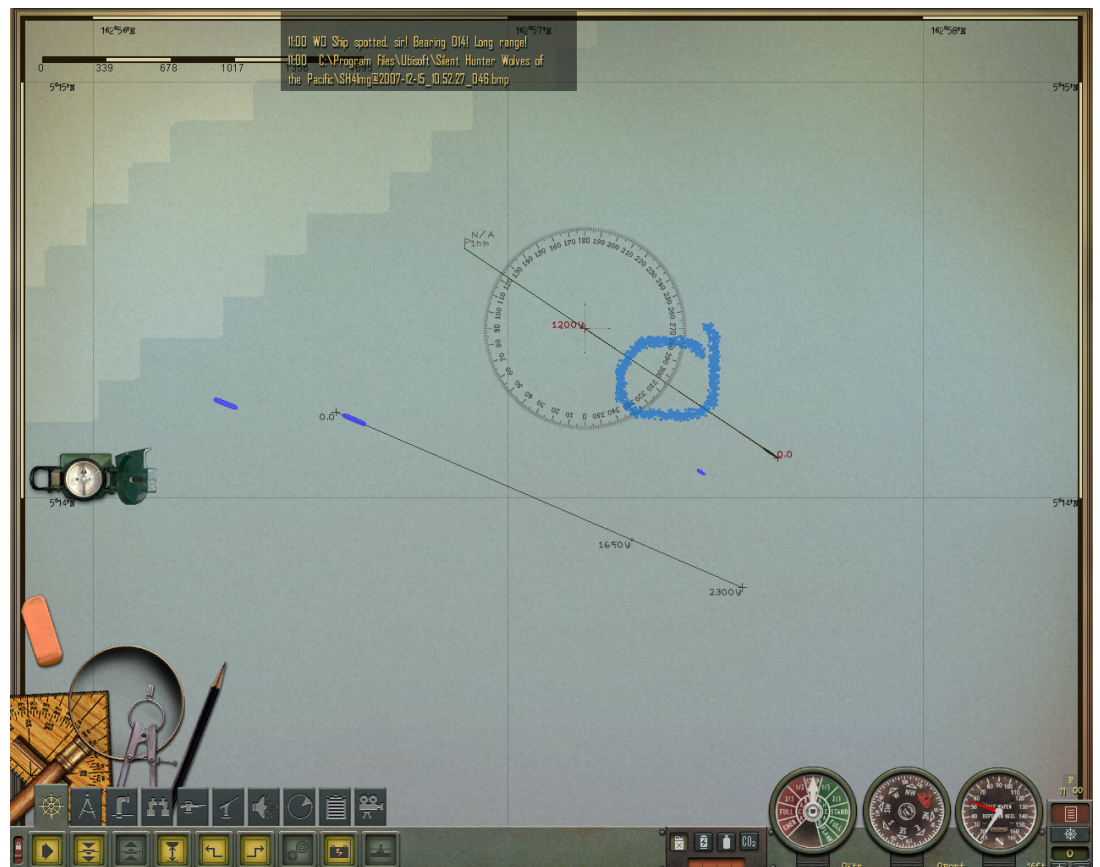


Your sub's course heading can be read from the Compass of the Quick Controls Panel along the lower portion of the game screen. As long as you both keep a steady course, the calculation will be accurate until a course change is made by you or the target ship.



The Yellow circle on the left picture shows your compass dial. The small red arrow points to the top center of the dial indicating the subs course bearing. There are no indicator marks along the rim of the compass to help in its reading. A mod compass would be nice to add if it has larger bearing numbers with indicator marks.

Your sub's course heading can also be obtained the same way as the target ship by centering the Bearing to North Protractor over your sub's projected path line and reading the value closest to the sub. In this example it's about 305'.





To obtain the view-to-target bearing or just "target bearing" use either the periscope, UZO, or the binoculars to site the target. The bearing of the target, from your sub, will be seen at the top of the device. In this example the view-to-target bearing is about 328'. Now we have the three pieces of information to make a calculation.

Target course bearing=112'
Sub course bearing=305'
View to target bearing=328'

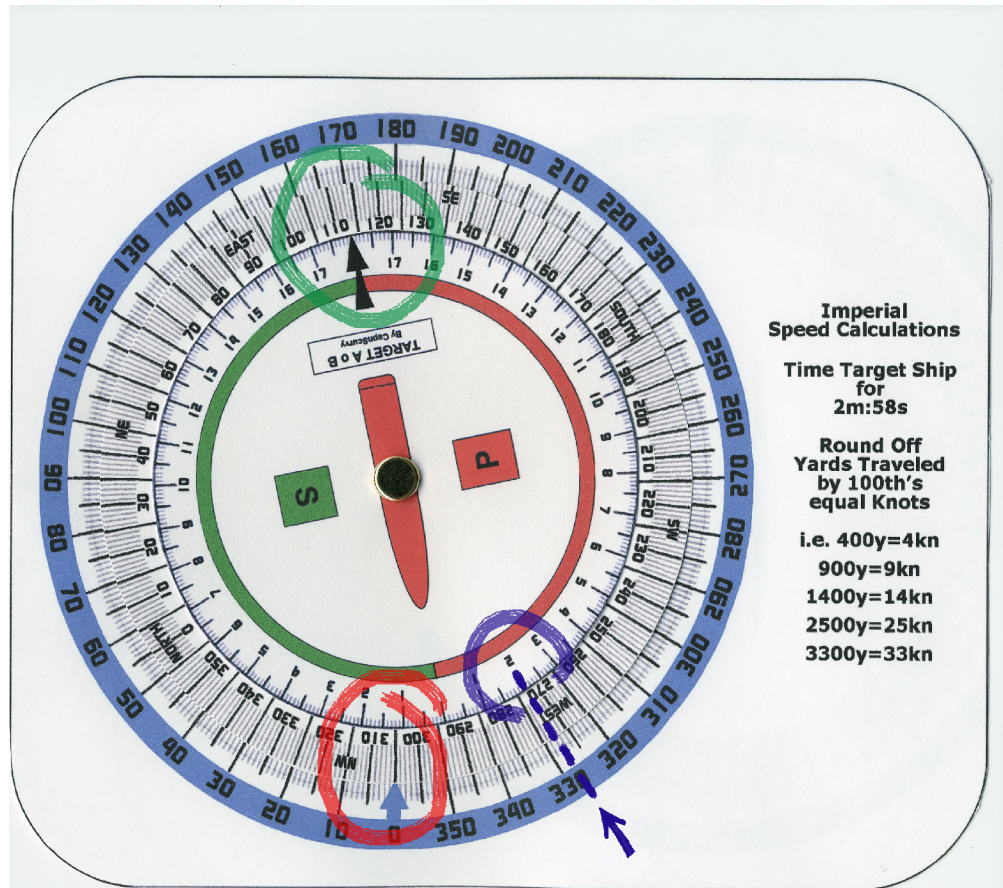
Using the illustration below, line up the black Arrow of the inner Target AoB dial with it's course heading of 112' onto the Compass Dial (the Green circle). Next, while moving the two smaller dials together, line up the Base Wheel's blue Arrow to your boat's course heading of 305' with the Compass Dial (the Red circle). Now find the "view-to-target bearing" of 328'

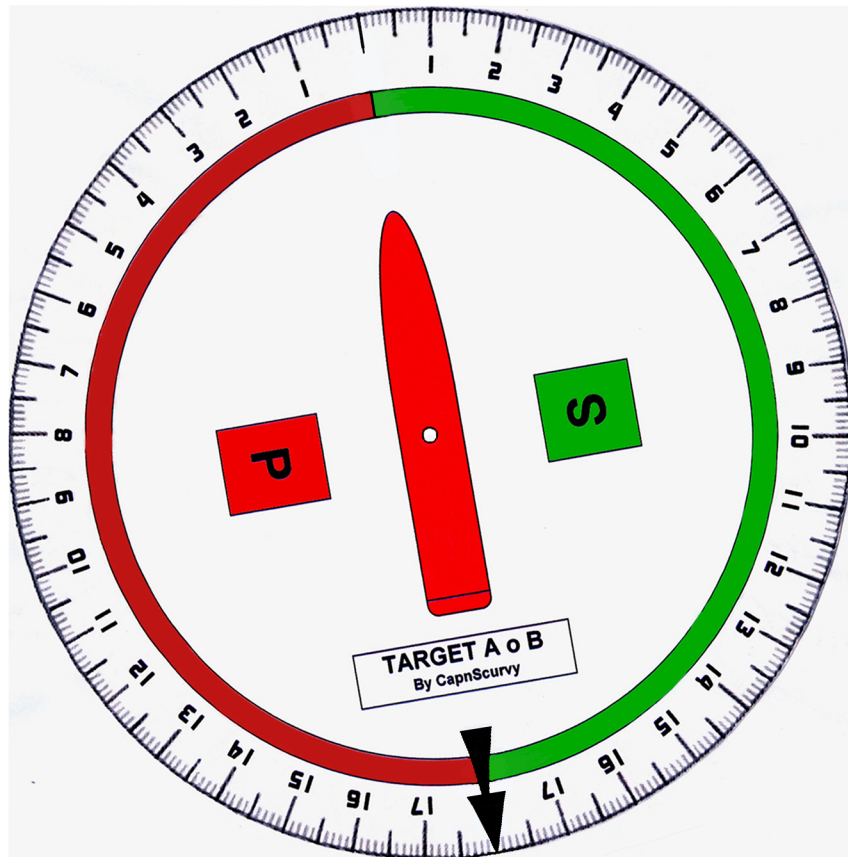
along the outer Base Wheel and match it with the inner dial's Angle on Bow degree numbers (the Blue arrow along the lower right, drawn to the inner dial at about the 2 Port mark). The AoB bearing is about 20' Port.

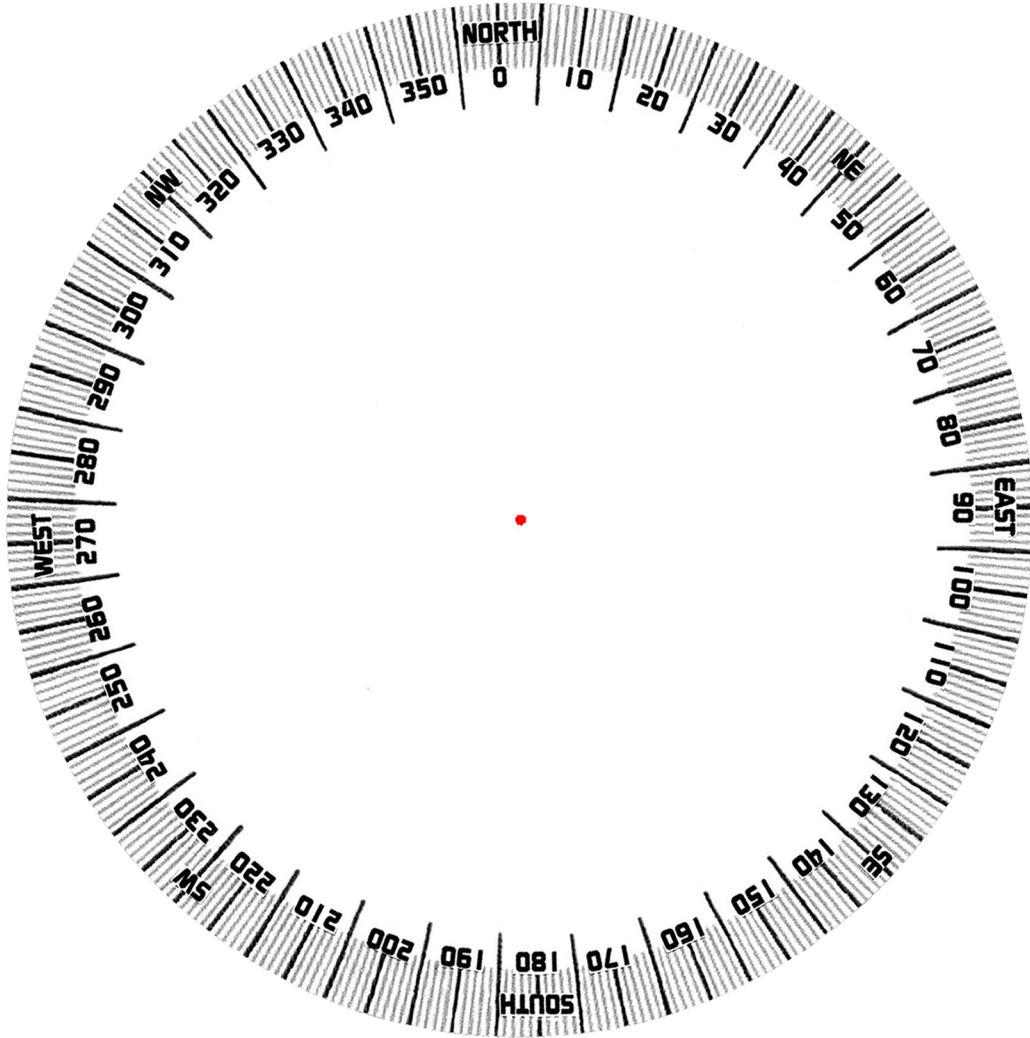
The AoB will change with the movement of both ships, so keeping the blue Base Wheel "view-to-target bearing" moving with the target ship is a good idea. "Locking" the in-game view is advised, however you should use caution regarding leaving your periscope up for too long. There is a chance of being spotted, causing the target to take evasive action. No need to move the dials unless a course change occurs between the two.

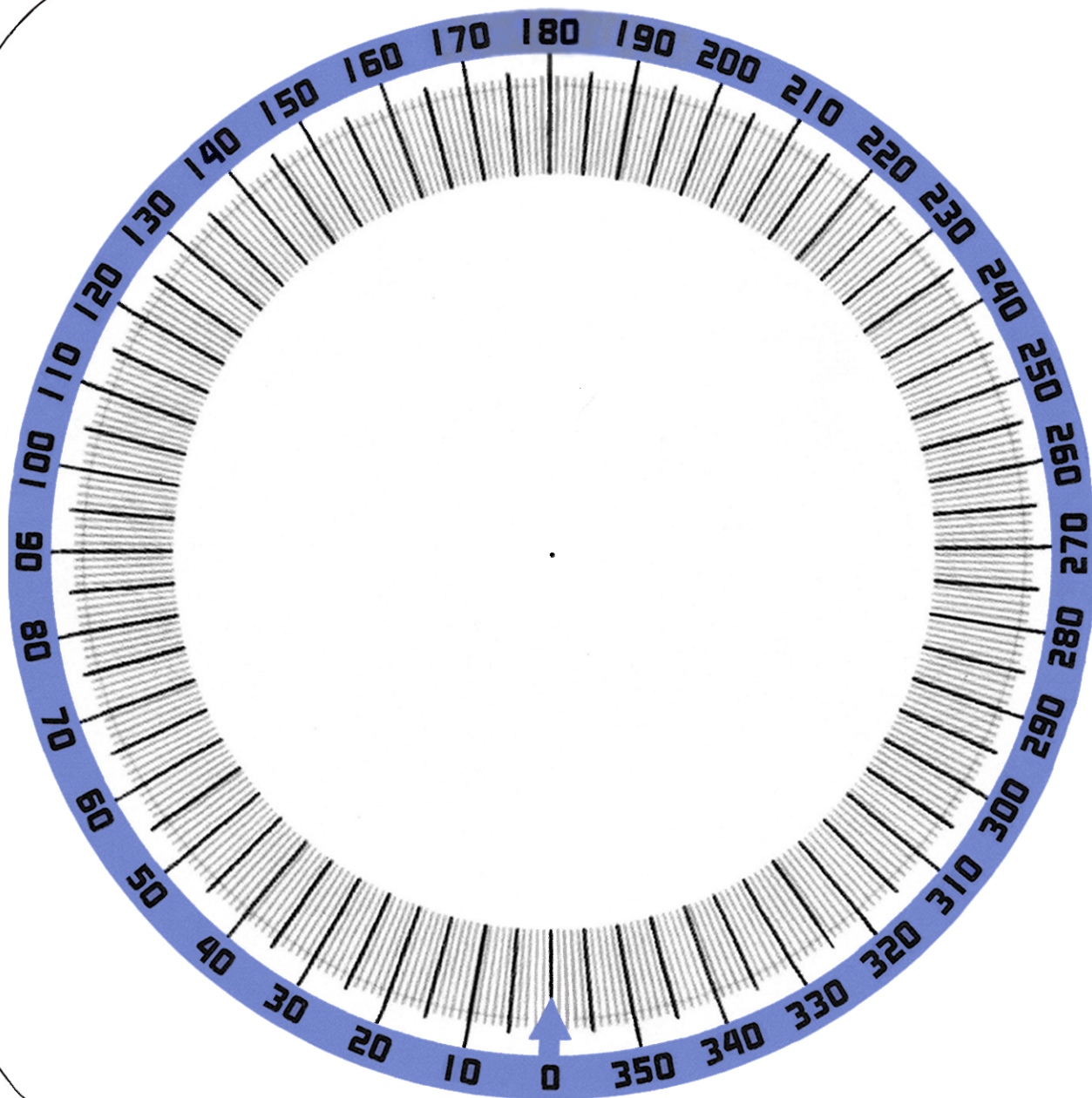
You can also get AoB info for future firings by using the navigation map to draw out your subs future planned course heading. As long as the target doesn't change course, you will not need to move the inner dial. By moving the blue Arrow to your new course, you will see what the future AoB will be.

Happy Hunting !









Imperial Speed Calculations

**Time Target Ship
for
2m:58s**

**Round Off
Yards Traveled
by 100th's
equal Knots**

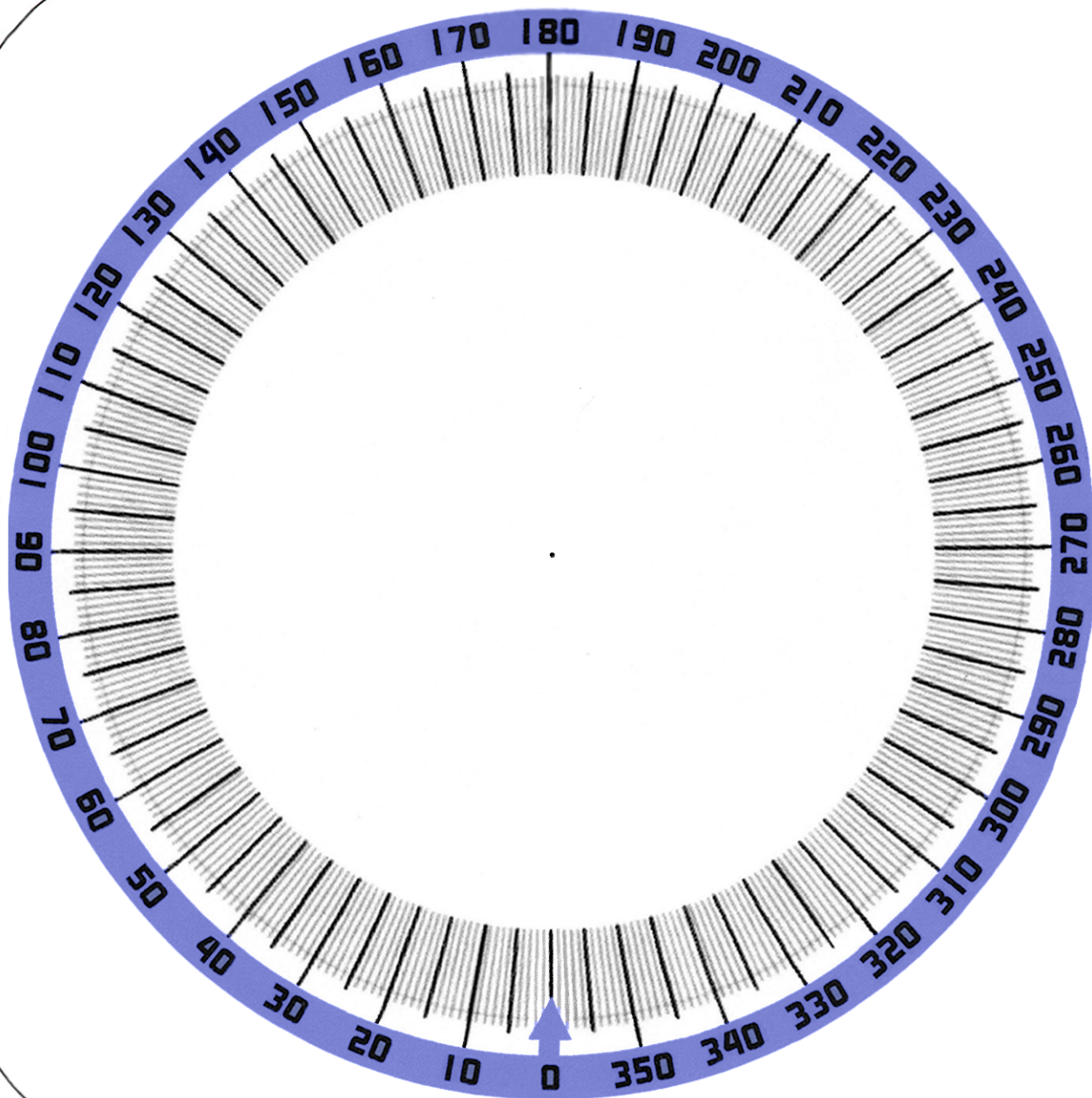
i.e. 400y=4kn

900y=9kn

1400y=14kn

2500y=25kn

3300y=33kn



Metric Speed Calculations

**Time Target Ship
for
3m:15s**

**Round Off
Meters Traveled
by 100th's
equal Knots**

i.e. 500m=5kn

1100m=11kn

1900m=19kn

2800m=28kn

3400m=34kn